

Exhibit 1

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

CELLULAR COMMUNICATIONS
EQUIPMENT LLC,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
et al.,

Defendants.

Civil Action No. 6:14-cv-759

JURY TRIAL DEMANDED

**DECLARATION OF J. STEVENSON KENNEY, PH.D.
REGARDING CLAIM CONSTRUCTION**

I, J. Stevenson Kenney, Ph.D., declare as follows:

I. INTRODUCTION

1. I have been retained by counsel for Defendants Samsung Electronics, Co. Ltd, Samsung Electronics America, Inc., AT&T Mobility LLC, Sprint Solutions, Inc., Sprint Spectrum L.P., Boost Mobile, LLC, T-Mobile USA, Inc., T-Mobile US, Inc., and Cellco Partnership d/b/a Verizon Wireless (collectively, “Defendants”) as an expert to analyze and explain what certain claim terms in U.S. Patent Nos. 8,645,786 (“the ’786 Patent”); 8,254,872 (“the ’872 Patent”); 7,218,923 (“the ’8923 Patent”); and 8,055,820 (“the ’820 Patent”) (collectively, “the Asserted Patents”) would mean to a person of ordinary skill in the art at the time of the alleged inventions.

2. I understand that Plaintiff Cellular Communications Equipment LLC (“CCE”) contends that “each asserted claim was conceived and constructively reduced to practice no later than the filing date of the earliest application to which it claims priority.” (*See* CCE’s Response to Common Interrogatory No. 1, dated October 13, 2015). For purposes of my analysis herein, I have assumed the claims of the Asserted Patents are entitled to these respective priority dates, but reserve the right to amend or supplement my opinions if CCE or Defendants allege the asserted claims are entitled to a different priority date. My analysis herein is not an admission of the proper priority date for any of the Asserted Patents.

3. I am being compensated at my usual hourly rate of \$600. I am being separately reimbursed for any out-of-pocket expenses. My compensation does not depend in any way on the outcome of this case, my particular testimony, or the opinions that I express.

4. In rendering my opinions, I considered the items listed in Exhibit A, the items discussed or listed herein, as well as my own experiences in the field. I reserve the right to amend or supplement my opinions in light of further documents, depositions, or discovery disclosures.

5. In addition to the Asserted Patents and their file histories, I have also reviewed CCE’s Preliminary Disclosure of Asserted Claims and Infringement Contentions pursuant to P.R. 3-1, dated May 15, 2015 (and accompanying production pursuant to P.R. 3-2), the parties’ P.R. 4-1 disclosures, dated July 31, 2015, the parties’ P.R. 4-2 disclosures, dated August 28, 2015, the Joint Claim Construction and Prehearing Statement pursuant to P.R. 4-3, dated September 11, 2015, and CCE’s Opening Brief on Claim Construction (Dkt. 131). I have also reviewed the productions associated with the aforementioned disclosures.

II. QUALIFICATIONS & EXPERIENCE

6. My qualifications can be found in my Curriculum Vitae, which includes a complete list of my publications, and is attached as Exhibit B.

7. My educational background includes a Bachelor of Electrical Engineering, with Honors, Georgia Institute of Technology (March, 1985), a Master of Science in Electrical Engineering, Georgia Institute of Technology (September, 1990), and a Ph.D. degree in Electrical Engineering, Georgia Institute of Technology (December, 1994).

8. I am currently a Professor, School of Electrical and Computer Engineering, at Georgia Institute of Technology in Atlanta, GA. I have held this position since 2011. Previously, I was an Associate Professor, School of Electrical and Computer Engineering, at Georgia Institute of Technology in Atlanta, GA from 1999-2011. I have supervised over 20 Master's and Ph.D. students involved in advanced research in wireless systems and components. As shown in Exhibit B, I have authored over 150 publications in peer reviewed journals and conferences related to RF design and digital wireless systems.

9. I have also held various electrical engineering roles in the telecommunications industry, including positions at Spectrian, Inc., Pacific Monolithics, Inc., Scientific Atlanta (Network Systems Division), and Electromagnetic Sciences, Inc. At Spectrian, I was the Director of Engineering in charge of overseeing development and production of UMTS base station products. At Pacific Monolithics, I was Manager of Engineering overseeing development of chips for 2G and 3G handsets. At Scientific Atlanta, I was a Senior Engineer developing satellite communications equipment for the commercial broadcast industry. At Electromagnetic Sciences, I designed products for military radar and communications.

10. I am knowledgeable about and familiar with wireless and cellular telecommunications standards, including the UMTS, and LTE standards, and as shown in

Exhibit B, I am also knowledgeable and familiar with technologies for power amplification, uplink power control, digital signal processing, and smart antenna design for wireless and telecommunications terminals, base stations, and radio network controllers.

III. LEGAL STANDARDS

11. I am informed on the law regarding claim construction and patent claims, and understand that a patent may include two types of claims, independent claims and dependent claims. An independent claim stands alone and includes only the limitations it recites. A dependent claim can depend from an independent claim or another dependent claim. I understand that a dependent claim includes all the limitations that it recites in addition to all of the limitations recited in the claim or claims from which it depends.

12. I am informed that claim construction is a matter of law for the Court to decide. Claim terms should be given their ordinary and customary meaning within the context of the patent in which the terms are used, *i.e.*, the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention in light of what the patent teaches.

13. I am informed that to determine how a person of ordinary skill would understand a claim term, one should look to those sources available that show what a person of skill in the art would have understood disputed claim language to mean. Such sources include the words of the claims themselves, the remainder of the patent's specification, the prosecution history of the patent and the cited references (all considered "intrinsic" evidence), and "extrinsic" evidence, such as dictionary definitions and learned treatises and the opinions of qualified experts concerning relevant scientific principles, the meaning of technical terms, and the state of the art.

14. I understand that, in construing a claim term, one looks primarily to the intrinsic patent evidence, including the words of the claims themselves, the remainder of the patent specification, and the prosecution history.

15. I understand that extrinsic evidence, which is evidence external to the patent and the prosecution history, may also be useful in interpreting patent claims when the intrinsic evidence itself is insufficient.

16. I understand that words or terms should be given their ordinary and accepted meaning unless it appears that the inventors were using them to mean something else. In making this determination, the claims, the patent specification, and the prosecution history are of paramount importance. Additionally, the specification and prosecution history must be consulted to confirm whether the patentee has acted as its own lexicographer (*i.e.*, provided its own special meaning to any disputed terms), or intentionally disclaimed, disavowed, or surrendered any claim scope.

17. I understand that the claims of a patent define the scope of the rights conferred by the patent. The claims must particularly point out and distinctly claim the subject matter which the patentee regards as his invention. Because the patentee is required to define precisely what he claims his invention to be, it is improper to construe claims in a manner different from the plain import of the terms used consistent with the specification. Accordingly, a claim construction analysis must begin and remain centered on the claim language itself. Additionally, the context in which a term is used in the asserted claim can be highly instructive. Likewise, other claims of the patent in question, both asserted and unasserted, can inform the meaning of a claim term. For example, because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often

illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.

18. I understand that a person of ordinary skill in the art is deemed to read a claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. For this reason, the words of the claim must be interpreted in view of the entire specification. The specification is the primary basis for construing the claims and provides a safeguard such that correct constructions closely align with the specification. Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim as set forth in the patent itself.

19. I understand that it is improper to place too much emphasis on the ordinary meaning of the claim term without adequate grounding of that term within the context of the specification of the asserted patent. Hence, claim terms should not be broadly construed to encompass subject matter that, although technically within the broadest reading of the term, is not supported when the claims are read in light of the invention described in the specification. Prior art incorporated by reference or otherwise cited during the prosecution history is also highly relevant in ascertaining the breadth of claim terms and is considered intrinsic evidence.

20. I understand that the role of the specification is to describe and enable the invention. In turn, the claims cannot be of broader scope than the invention that is set forth in the specification. Care must be taken lest word-by-word definition, removed from the context of the patent, leads to an overall result that departs significantly from the patented invention.

21. I understand that claim terms must be construed in a manner consistent with the context of the intrinsic record. In addition to consulting the specification, one should also

consider the patent's prosecution history, if available. The prosecution file history provides evidence of how both the Patent Office and the inventors understood the terms of the patent, particularly in light of what was known in the prior art. Further, where the specification describes a claim term broadly, arguments and amendments made during prosecution may require a more narrow interpretation.

22. I understand that while intrinsic evidence is of primary importance, extrinsic evidence, *e.g.*, all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises, can also be considered. For example, technical dictionaries may help one better understand the underlying technology and the way in which one of skill in the art might use the claim terms. Extrinsic evidence should not be considered, however, divorced from the context of the intrinsic evidence. Evidence beyond the patent specification, prosecution history, and other claims in the patent should not be relied upon unless the claim language is ambiguous in light of these intrinsic sources. Furthermore, while extrinsic evidence can shed useful light on the relevant art, it is less significant than the intrinsic record in determining the legally operative meaning of claim language.

23. I understand that in general, a term or phrase found in the introductory words of the claim, the preamble of the claim, should be construed as a limitation if it recites essential structure or steps, or is necessary to give life, meaning, and vitality to the claim. Conversely, a preamble term or phrase is not limiting where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention. In making this distinction, one should review the entire patent to gain an understanding of what the inventors claim they actually invented and intended to encompass by the claims.

24. I understand that language in the preamble can limit claim scope (i) if dependence on a preamble phrase for antecedent basis indicates a reliance on both the preamble and claim body to define the claimed invention; (ii) if reference to the preamble is necessary to understand limitations or terms in the claim body; or (iii) if the preamble recites additional structure or steps that the specification identifies as important.

A. Legal Standard for Means-Plus-Function Claims

25. I understand that claims of a patent may be written in what is known as a “means-plus-function” form pursuant to 35 U.S.C. § 112, ¶ 6.

26. I understand that although use of the term “means” or “means for” is ordinarily presumed to invoke a means-plus-function claim, that presumption is no longer a strong presumption and is not conclusive. Instead, I have assumed that the determination as to whether a claim limitation is a means-plus-function claim limitation is based on whether the claim limitation fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.

27. In making the assessment of whether the limitation in question is a means-plus-function term, I understand that the essential inquiry is not merely the presence or absence of the word “means,” but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure. Absent such sufficiently definite meaning as the name for structure, the limitation in question is a means-plus-function claim limitation.

28. I also understand there are certain class of “nonce” claims terms, such as “module,” that might invoke §112, ¶ 6. These “nonce” terms are word that can operate as a substitute for “means” in the context of §112, ¶ 6 because they are simply a generic description

for software or hardware that perform specified functions. Other generic terms, such as “mechanism,” “element,” and “device,” may also reflect nothing more than verbal constructs and may be used in a claim in a manner that is tantamount to using the word “means” because these terms typically do not connect sufficiently definite structure and therefore may invoke §112, ¶ 6.

29. I understand that such claims are construed to cover the corresponding structure, material, or acts described in the specification and their equivalents. I also understand that structure disclosed in the specification qualifies as “corresponding” structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. The corresponding structure must include all structure that actually performs the recited function and cannot merely be the description of a “black box.” Rather, the structure needs to be described in detail and not as an abstraction.

30. I understand that the following general approach is used when determining whether means-plus-function claims are indefinite for failure to disclose sufficient structure to perform the claimed function: (a) a means-plus-function element is defined according to corresponding structure found in the specification to perform the recited function; (b) if insufficient or no corresponding structure is found in the specification then the term cannot be defined; and (c) the claim is therefore indefinite.

31. I also understand that in a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm. I further understand that when performing this analysis, the question is whether a person of ordinary skill in the art would

understand the specification discloses structure that performs the claimed function, which in the case of a specific function implemented on a general purpose computer or microprocessor requires disclosure of an algorithm. I understand that absent any such algorithm, the claim lacks sufficient disclosure of structure and is therefore indefinite.

B. Legal Standard for Indefiniteness

32. I am informed that the specification of a patent must satisfy a definiteness requirement, which requires that it conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as the invention.

33. I am also informed that definiteness requires that a patent's claims, viewed in light of the specification and file history from the perspective of a person skilled in the relevant art at the time the patent was filed, inform those skilled in the art about the scope of the invention with reasonable certainty.

34. I understand that a patent must be precise enough to afford clear notice of what is claimed and apprise the public of what subject matter is still open to them in a manner that avoids a zone of uncertainty.

IV. BACKGROUND OF THE TECHNOLOGY

A. Level of Ordinary Skill in the Art

35. In my opinion, for the '786 Patent, the '872 Patent, and the '820 Patent, a person of ordinary skill in the art at the time of the alleged inventions would have at least (1) a Master's degree in electrical engineering, computer science, or a related field and (2) at least two years experience working with cellular telephony systems. I base my opinion on my review of these patents, my education and knowledge of the state of the art, and my own experiences in the field.

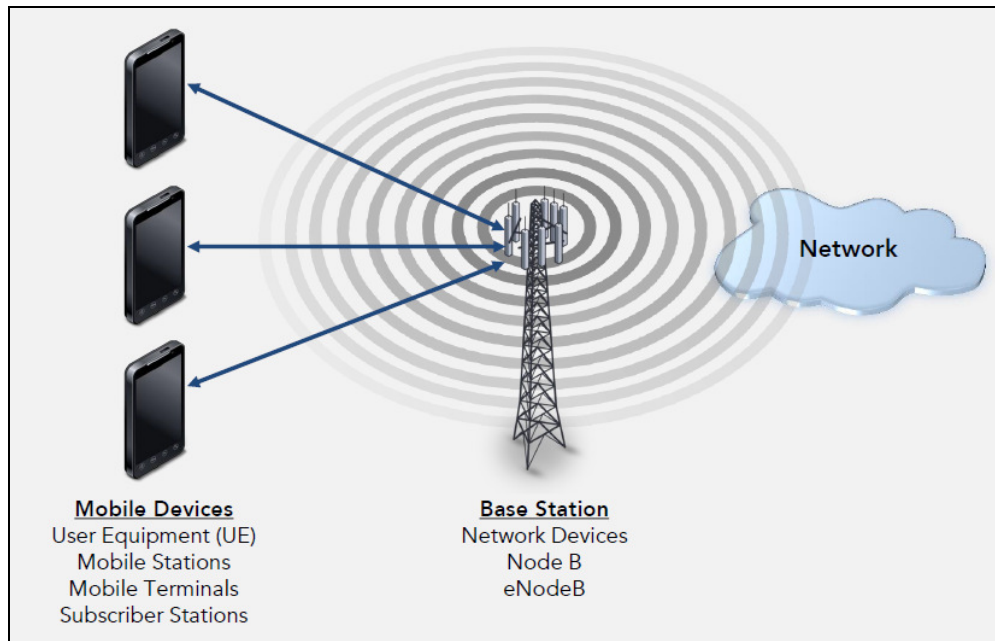
36. In my opinion, for the '8923 Patent, a person of ordinary skill in the art at the time of the alleged inventions would have at least an undergraduate or graduate degree in electrical engineering, computer science, or a comparable degree, in combination with at least 2-4 years of practical experience in the field. I base my opinion on my review of the '8923 Patent, my education and knowledge of the state of the art, and my own experiences in the field.

37. At the time of each of the alleged inventions described within the Asserted Patents, I possessed at least ordinary skill in the art, and I have applied the understanding of a person of ordinary skill at the time of the alleged inventions throughout my analysis herein.

B. Cellular Telephony and Related Standards

38. Cellular telephones (*e.g.*, cell phones or mobile phones) are widely available today. These phones communicate with cell towers and the network by transmitting and receiving radio frequency ("RF") signals. Service providers, such as AT&T and Verizon, maintain and operate the cell towers and other network infrastructure equipment and provide access to their networks in exchange for usage fees from subscribers.

39. While the specifics regarding architectures and technologies vary, the wireless networks owned and operated by these service providers generally consist of a wireless portion from the mobile device to the base station and a wired core network. The figure below shows a basic cellular system where mobile devices connect to base stations, which in turn provide access to the network.



40. The base station, more colloquially known as a cell tower, communicates with mobile devices wirelessly by transmitting and receiving the RF signals. The base station is also known as the “Node B” (or “eNodeB” for LTE), and the mobile device is known as the mobile station, mobile terminal, or user equipment (“UE”) within the industry.

41. Traditionally, each base station includes only partial functionality to control and route the wireless signals and to interface with the core network. Multiple base stations are sometimes controlled by another entity known as the Radio Network Controller (“RNC”), but they may also have the ability to coordinate activities directly between each other. The base station and RNC hardware collectively is sometimes referred to as the UMTS radio access network or Universal Terrestrial Radio Access Network (“UTRAN”). For LTE networks, the term Evolved-UTRAN (or E-UTRAN) is often used.

42. In the figure shown above, there are two types of wireless communication: the communication from a base station to the mobile device, and the communication from the mobile device to a base station. The communication from the base station to the mobile device

is referred to as the “downlink” communication or transmission, and the communication from the mobile devices to the base station is referred to as the “uplink” communication or transmission.

43. When a mobile device moves out of a region served by one base station and moves into another base station’s region (or cell region), it is necessary to coordinate these base stations to maintain the connection to the mobile device; this process is known as the “hand-over.”

44. The 3rd Generation Partnership Project (3GPP) is a collaboration between groups of telecommunications associations that promulgate the wireless standards used for cellular telephony. The UMTS (or “3G”) and LTE (or “4G”) standards are used in networks throughout the United States and the world. Service providers are able to support a wide variety of voice and data applications using these standards. Further information regarding the technical background of the Asserted Patents can be found in Defendants’ Technology Tutorial lodged on October 23, 2015 (Dkt. 130), which is incorporated by reference herein.

C. Reservation of Rights

45. I reserve the right to further discuss the background of the technology as necessary to support my opinions regarding the understanding of a person of ordinary skill in the art at the time of the alleged invention of the claim terms discussed below, and reserve the right to rely on my own knowledge, relevant publications, or other information disclosed by the parties. I may use additional graphics to explain the relevant technology and my opinions.

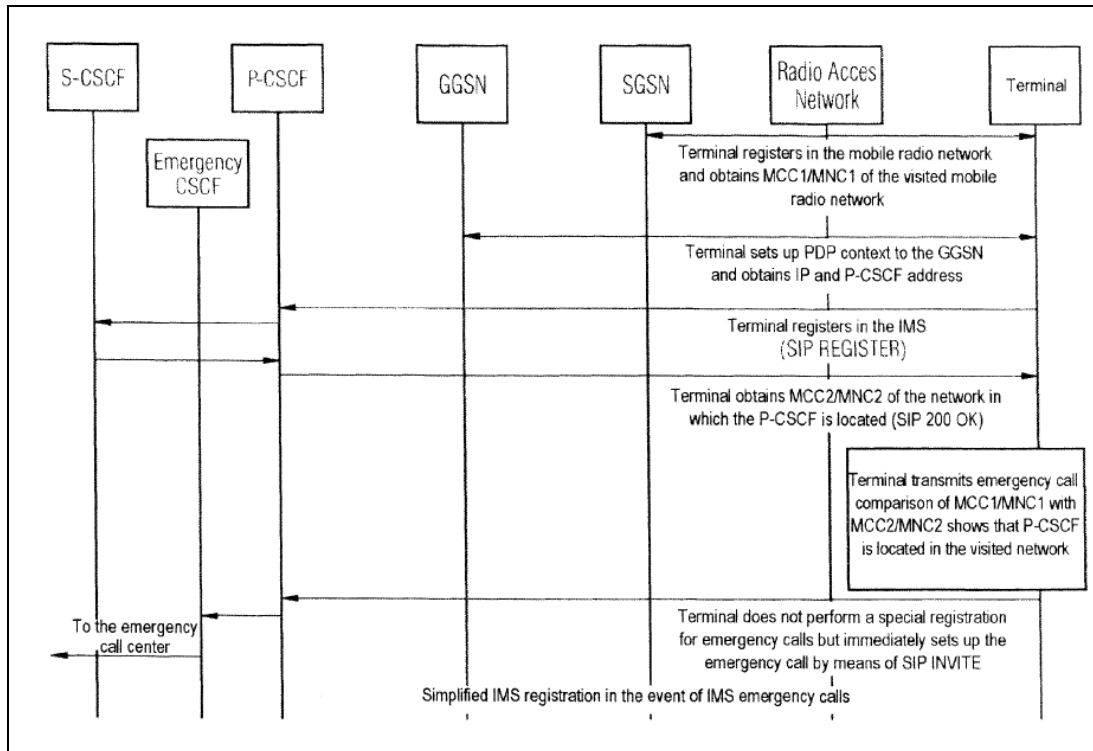
V. OPINIONS ON UNDERSTANDING OF ONE OF ORDINARY SKILL

A. The ’872 Patent

46. The '872 Patent, titled "Simplified method for IMS registration in the event of emergency calls," was filed on April 13, 2007 and claims priority to a German patent application filed April 27, 2006. For the purposes of this declaration, I consider the date of invention to be April 27, 2006.

47. The '872 Patent is directed to "simplification of IMS registration" whereby IMS registration can be skipped, or dispensed with, when a comparison of network identifiers reveals the user is a "home network." ('872 Patent at Abstract). The specification explains "[t]he invention describes methods by means of which a special IMS registration for emergency calls, and in the case of GPRS/UMTS access systems, the setting-up of a separate PDP [Packet Data Protocol] context, can be dispensed with in most cases. Since setting-up of a PDP context and IMS registration are time-consuming procedures, this results in considerable time saving which is a significant requirement particularly in the case of emergency calls." (*Id.* at 2:63-3:3).

48. The specification only includes a single figure—a flowchart purporting to show "how a terminal, after successful IMS registration, can transmit an emergency call via a mobile radio access network without first having to perform a special emergency call registration in the IMS." (*Id.* at 3:10-14).



1. Means-Plus-Function Terms

49. I understand that the parties agree that the terms (1) “receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network”; (2) “comparison means for comparing the received network identifier of the visited network with a network identifier of a home network of the terminal”; and (3) “connection means for setting up an emergency call connection” are means-plus-function terms governed by 35 U.S.C. §112, ¶ 6. (*See* Dkt. 131, CCE’s Opening Brief on Claim Construction). I further understand that the parties also agree on the corresponding functions for all three terms. The dispute, however, is whether the specification of the ’872 Patent discloses any corresponding structure that is clearly linked to the recited claimed function. In my opinion, one of ordinary skill in the art would find no such structure disclosed in the specification for these three terms.

(a) ***“receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network”***

50. The term “receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network” is used in claim 12 of the ’872 Patent. In my opinion, this term is indefinite because the specification does not describe sufficient structure for performing the function of “receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network.”

51. With respect to this function, the only corresponding description within the specification of an object performing this function takes the form of a generic “terminal.” (’872 Patent at 2:20-39). The word “terminal,” however, is generic and nondescript and would not connote any definite structure to a person of ordinary skill in the art. A person of ordinary skill in the art would understand that a “terminal” is a generic term for any device that can support a variety of functions and must be specially programmed to perform any particular function. For example, in the telecommunications field, a person of ordinary skill in the art would understand a “terminal” could describe any device that ends a telecommunications link or the point at which a signal enters or leaves a telecommunications network. Terminals could include general-purpose computers or workstations, dumb text terminals, audio/video terminals, fax terminals, telephone terminals, and many other types of devices.

52. I note that the entire specification of the ’872 Patent spans a mere *two columns*, and provides no detail as to the described terminal’s structure or composition. For example, there is no identification within the specification of what structure within the terminal actually performs the function of “receiving a network identifier of a visited network notified to the

terminal when the terminal is registered in the visited network.” It is my opinion that the described “terminal” does not connote any particular structure for performing this function, nor would one of ordinary skill in art understand any structure was implied by the described “terminal.”

53. With regard to the “receiving means,” the ’872 Patent fails to disclose any “receiving” function, let alone the claimed receiving function. At best, the ’872 Patent contains a single reference to a “received identifier” (*id.* at 2:31), but this presumes the prior receipt of the identifier. Thus, the ’872 Patent is completely devoid of any description linking the “receiving” function to a corresponding structure. For these reasons, it is my opinion this term is indefinite.

(b) “comparison means for comparing the received network identifier of the visited network with a network identifier of a home network of the terminal”

54. The term “comparison means for comparing the received network identifier of the visited network with a network identifier of a home network of the terminal” is used in claim 12 of the ’872 Patent. In my opinion, this term is indefinite because the specification does not describe sufficient structure for performing the function of “comparing the received network identifier of the visited network with a network identifier of a home network of the terminal.”

55. As described above, the only object identified within the specification of the ’872 Patent for performing this function is a generic “terminal.” (’872 Patent at 2:20-39). The specification provides no detail, however, as to the terminal’s structure or composition. More importantly, the specification is devoid of any discussion regarding the claimed “comparing”

function, its corresponding structure, or statements linking the claimed function to any structure.

56. With regard to the “comparison means,” the ’872 Patent contains a single disclosure of a comparison function. (*See id.* 3:30-38). However, this disclosure focuses on *whether* the comparison should occur (*i.e.*, whether the terminal “should transmit an emergency call later”) and not on any structure that actually performs that comparison or how the comparison is performed. Without linking the comparison function to any structure, this disclosure does not limit the number of possible structures from performing the comparison, such as a terminal, network equipment, or a third-party. Thus, the ’872 Patent fails to clearly link the “comparing” function to a corresponding structure. For these reasons and the reasons described above in connection with the term “receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network,” it is my opinion this term is also indefinite.

(c) ***“connection means for setting up an emergency call connection”***

57. The term “connection means for setting up an emergency call connection” is used in claim 12 of the ’872 Patent. In my opinion, this term is indefinite because the specification does not describe sufficient structure for performing the function of “setting up an emergency call connection.”

58. Once again, the only object identified within the specification of the ’872 Patent for performing this function is a generic “terminal.” (’872 Patent at 2:20-39). The specification provides no detail, however, as to the terminal’s structure or composition. More importantly, the specification is devoid of any discussion regarding the claimed “setting up”

function, its corresponding structure, or statements linking the claimed function to any structure.

59. With regard to the “connection means,” the ’872 Patent’s only two references to connecting emergency calls are merely a restatement of the function. (*See id.* at 2:4-5 (“The object of the invention is simplification of the setting-up of an emergency call connection.”); Figure 1 (“Terminal . . . immediately sets up the emergency call by means of SIP INVITE.”)). Aside from these statements, the ’872 Patent does not discuss “setting-up” a call connection. Instead, it focuses on “dispensing with” the “setting-up” of a context for data packet transmissions at the outset of a connection. (*See, e.g., id.* at 1:62-64). Thus, the ’872 Patent fails to clearly link the “setting up” function to a corresponding structure. For these reasons and the reasons described above in connection with the term “receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network,” it is my opinion this term is also indefinite.

2. Additional ’872 Patent Terms

60. In my opinion, there are three additional claim terms in the ’872 Patent that are properly construed as means-plus-function limitations under 35 U.S.C. § 112, ¶ 6 and are indefinite because the specification fails to disclose sufficient structure for performing the respective corresponding functions. These three terms are described below.

(a) “receiver”

61. The term “receiver” suffers from the same lack of disclosure as the term “receiving means for receiving a network identifier of a visited network notified to the terminal when the terminal is registered in the visited network” described above. One of ordinary skill in the art would not attribute any definite structure to a “receiver”; rather, only the function of

“receiving” would be implied. In other words, one of ordinary skill in the art would understand this term to only recite function without reciting sufficient structure for performing that function and be a mere substitute for the claimed “receiving means.” In my opinion, the claimed “receiver” could correspond to countless generic elements within a communications system so long as the element performed some receiving function. For the same reasons I described above with respect to “receiving means...,” therefore, this term is also indefinite.

(b) “*comparator*”

62. The term “comparator” suffers from the same lack of disclosure as the term “comparison means for comparing the received network identifier of the visited network with a network identifier of a home network of the terminal” described above. One of ordinary skill in the art would not attribute any definite structure to a “comparator”; only the function of “comparing” would be implied. In other words, one of ordinary skill in the art would understand this term to only recite function without reciting sufficient structure for performing that function and be a mere substitute for the claimed “comparison means.” The claimed “comparator” could correspond to countless generic elements within a communications system so long as the element performed some comparing function. For the same reasons I described above with respect to “comparison means...,” therefore, this term is also indefinite.

(c) “*connection unit*”

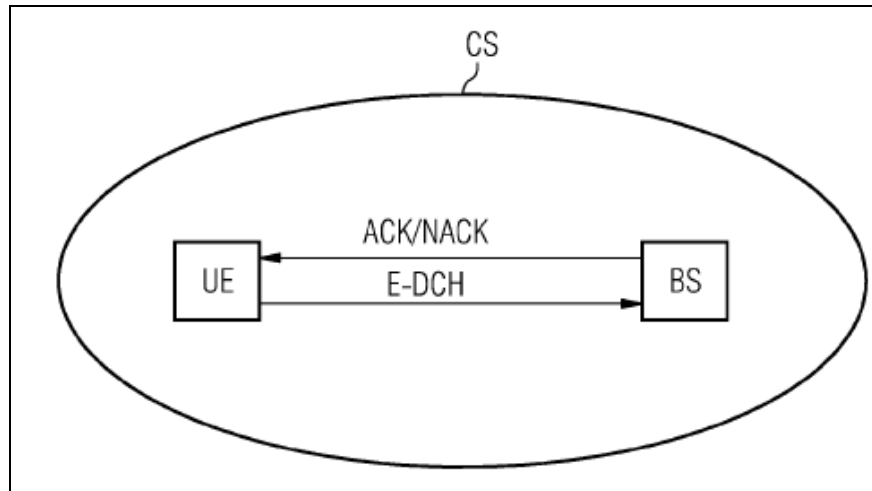
63. The term “connection unit” suffers from the same lack of disclosure as the term “connection means for setting up an emergency call connection” described above. One of ordinary skill in the art would not attribute any definite structure to a “connection unit”; only the function of “connecting” or “setting up a connection” would be implied. In other words, one of ordinary skill in the art would understand this term to only recite function without

reciting sufficient structure for performing that function and be a mere substitute for the claimed “connection means.” The claimed “connection unit” could correspond to countless generic elements within a communications system so long as the element performed some comparing function. For the same reasons I described above with respect to “connection means...,” therefore, this term is also indefinite.

B. The '786 Patent

64. The '786 Patent, titled “Decoding method,” was filed on September 15, 2005 and claims priority to two European patent applications filed September 15, 2004 and November 15, 2004. For the purposes of this declaration, I consider the date of invention to be September 15, 2004.

65. The '786 Patent is directed to “[a] decoding method for decoding information content in at least one data packet, which is transmitted from a sender to a receiver via a data link.” ('786 Patent at Abstract). An “incremental redundancy” scheme is described where information to be transmitted is represented by different “redundancy versions.” (*Id.* at Abstract, 6:34-38). A coding parameter specifies whether each redundancy version is “self-decodable,” meaning the redundancy version is decodable only by itself and without considering other data. (*Id.* at 2:57-60; 8:39-43). As shown below, the redundancy versions can be used as part of a Hybrid Automatic Repeat reQuest (HARQ) scheme whereby “packets are transmitted, and if they are not received correctly, a retransmission is transmitted upon receipt of a negative confirmation of the receiver.” (*Id.* at 1:22-37). The retransmission scheme could be employed between a terminal UE and a base station BS within a communication system CS, as shown below in the only Figure of the '786 Patent.



1. “self decodable rate matching pattern”

66. In my opinion, the term “self decodable rate matching pattern” as that term is used in claim 1 of the ’786 Patent is indefinite because this term fails to particularly point out and distinctly claim the subject matter which the patent applicant regards as his invention and fails to inform, with reasonable certainty, those skilled in the art at the time of the invention about the scope of the claimed invention.

67. In UMTS/LTE systems, there are two processes that take place to prepare data for transmission. The first process is error correction encoding that uses redundant bits to improve the performance of the receiver so that it is more likely to receive the correct information after decoding. The second process is a rate matching algorithm that involves the puncturing (deleting) or repeating of bits in order to achieve a desired final number of bits for a given frame size. (*See id.* at 9:32-39).

68. One of ordinary skill in the art would understand that information can be encoded using one of a number of coding algorithms (*e.g.*, Turbo coding). The output of such algorithms do not necessarily fit within predefined frame or block sizes; therefore, a rate matching process (that uses a rate matching pattern) must be applied to the output in order to

match the output size to the transmission frame or block size. One step in the rate matching process is the application of a rate matching pattern which defines the particular bits to be excluded or repeated in the data frame.

69. The express language of claim 1 requires “a first rate matching pattern selected from a set of at least two self decodable rate matching patterns.” The last portion of this phrase, “self decodable rate matching patterns,” would not be understood with reasonable certainty for at least three reasons. First, this phrase was not used in the art at the time of the invention, and the ’786 Patent does not describe what is meant by it. Second, a person of ordinary skill in the art at the time of the invention would understand that a “rate matching pattern” cannot be “self-decodable.” Third, the intrinsic evidence discloses that the “rate matching pattern” does not influence whether or not a transmission is “self-decodable.”

70. First, there would have been no well understood definition of what constitutes a “self decodable rate matching pattern” to a person of ordinary skill in the art at the time of the invention, nor is there a well understood definition of this term today. The first time I have seen this combination of words was in reviewing the ’786 Patent. However, the ’786 Patent does not use or define the phrase “self decodable rate matching pattern” anywhere in the specification, and contains no description resembling this phrase. Thus, a person of ordinary skill in the art at the time of the invention would be forced to try to glean meaning out of the individual words of this phrase.

71. Second, merely combining the definitions of “self decodable” and “rate matching pattern” would be nonsensical. This is because a rate matching pattern is not itself encoded or decoded, but rather is used in encoding and decoding processes. Thus, “self decodable” cannot describe a characteristic of a “rate matching pattern.”

72. This is in contrast to other claim language, “self decodable redundancy version.” A redundancy version is one of multiple possible representations of data for transmission, and it can be encoded and decoded. Thus, “self decodable redundancy version” makes sense because “self decodable” can be a literal characteristic of a “redundancy version.” Thus, claim 1’s usage of “self decodable” in this context would further confuse a person of ordinary skill in the art at the time of the invention, because “self decodable rate matching pattern” cannot be understood literally. This causes unwarranted guessing as to how “self decodable” modifies “rate matching pattern” differently than it does “redundancy version.”

73. Third, one of ordinary skill in the art would be further confused by the term “self decodable rate matching pattern” in view of the intrinsic record. The specification discloses two parameters, s and r , which are used in the “rate matching stage,” to produce a “redundancy version.” (*Id.* at 7:61-67). The parameter r determines the “rate matching pattern” used to create the redundancy version. (*Id.* at 8:21-38). In other words, the rate matching pattern is used to modify how the coded information is represented (*i.e.*, bits repeated or deleted) in order to achieve a specified transmission rate. The parameter s , on the other hand, determines whether the redundancy version is “self decodable,” *i.e.*, “that it can be decoded by itself” without resort to any other information. (*See id.* at 8:39-43). One of ordinary skill in the art would understand that the parameters s and r are separate and distinct parameters used in the rate matching stage described within the ’786 Patent. (*See id.* at 8:21-52). Thus, it is unclear what is meant by a “self decodable rate matching pattern” because the selection of a rate matching pattern (parameter r) does not affect whether the redundancy version is self decodable (parameter s).

74. Given that the “rate matching pattern” is not described as affecting “self-decodability” of the output, a person of ordinary skill in the art might consider whether “self decodable” refers to the eventual output of the coding process, regardless of any action by the “rate matching pattern.” This construction, however, would vitiate the adjective “self decodable” specifically describing the “rate matching pattern,” particularly as it was separately used in “self decodable redundancy version,” in claim 1. Thus, it is unclear what “self decodable” adds in the context of a “self decodable rate matching pattern.”

75. Therefore, a person of ordinary skill in the art would simply not understand what it means for a “rate matching pattern” to be “self decodable.” In my opinion, the use of this term shrouds the scope of the asserted claims with a zone of uncertainty and does not particularly point out or distinctly claim the subject matter which the patent applicant regards as his invention. The use of the term “self decodable rate matching pattern” in the asserted claims also does not put the public on notice of what is (and what is not) within the scope of the claims. Without such notice, the claims do not apprise the public of what is still open to them (*i.e.*, what is able to be practiced without a license). A person of ordinary skill in the art reading the claims of the '786 Patent, therefore, would not understand the technology he or she can practice without risking an infringement claim. For all these reasons, it is my opinion this term is indefinite.

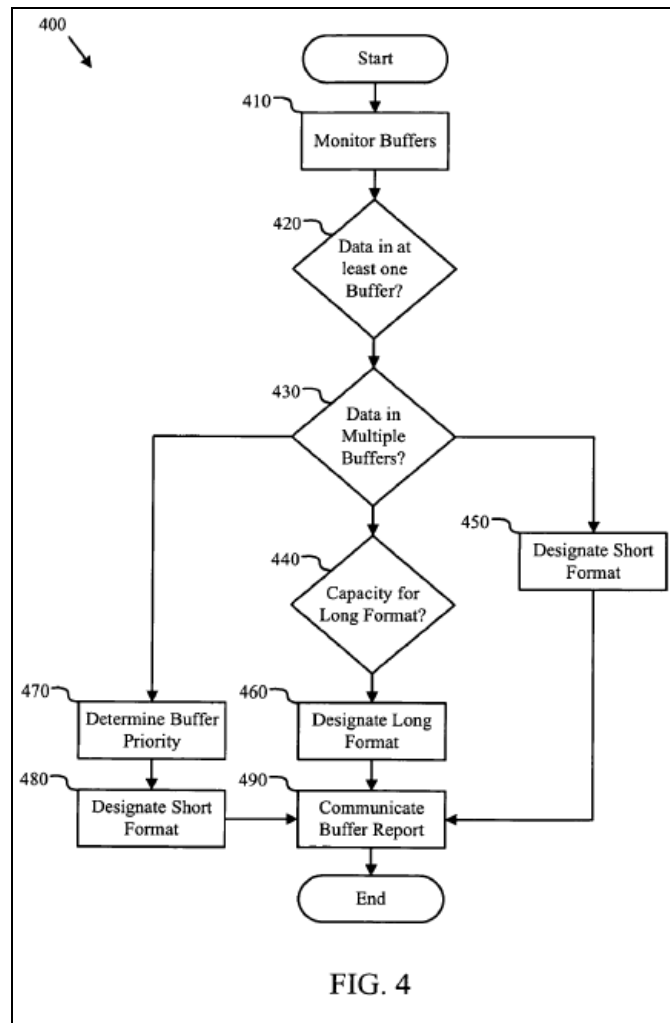
C. The '820 Patent

76. The '820 Patent, titled “Apparatus, system, and method for designating a buffer status reporting format based on detected pre-selected buffer conditions,” was filed on November 5, 2008 and claims priority to a provisional application filed November 5, 2007. For the purposes of this declaration, I consider the date of invention to be November 5, 2007.

77. The '820 Patent relates to a system and methods of allocating network resources in cellular communications systems. In order for the network to understand the demands of various mobile devices, a data buffer status reporting scheme is used to inform the network of the needs of each device. This type of network allocation was well known by the purported invention date and the '820 Patent, by its own admission, is directed to system and methods for increasing buffer status reporting efficiency. ('820 Patent at Abstract).

78. In the communications systems of the '820 Patent, each of the mobile devices is capable of two distinct types of buffer status reports. The '820 Patent describes these formats as the "long buffer status reporting format" and the "short buffer status reporting format." (*Id.* at 1:53-55). The alleged improvement to prior art systems is a more flexible and efficient method for communicating buffer status reports. (*Id.* at 1:22-30).

79. One embodiment of the invention as a whole that is found within the '820 Patent is illustrated by Figure 4 and its associated explanation.



80. Figure 4, illustrated above, and associated description, requires the mobile device to monitor its data buffers to see if they have data to send to the network. If only one buffer has data, the mobile device designates the short buffer status report. (*Id.* at 8:23-25). When the mobile device has data in multiple buffers, it checks to see if there is capacity to send the long format report. If there is capacity, it sends the long report; if not, it sends the short report designating the highest priority buffer. (*Id.* at 8:29-39).

81. An alternate embodiment is additionally described in the '820 Patent where the total size of the uplink grant is used as the metric for determining which report will be used. In this embodiment, when there is data in more than one buffer and the size of the grant is large

enough, the long report is sent. If not, the short report is sent designating the highest priority buffer. (*Id.* at 10:29-44).

1. “network device”

82. In my opinion, the term “network device” as used in claims 1, 12, and 24 of the ’820 Patent is indefinite because this term does not recite sufficiently definite structure, but rather merely recites function without sufficient structure for performing that function and the specification does not describe the missing structure.

83. To a person of ordinary skill in the art, the term “network device” is not understood to have a sufficiently definite meaning as the name for structure. Rather, claims 1, 12, and 24 merely indicate this device performs the function of receiving buffer status reports without reciting any structure that actually accomplishes the receiving. To a person of ordinary skill in the art, the term “device” is very similar to another term used in the claims of the ’820 Patent—“unit”—which I understand this Court has already found to be a means-plus-function term governed by 35 U.S.C. §112, ¶ 6 as part of the term “designating unit.”

84. In other words, it is my opinion that a person of skill in the art would not understand this term to connote any structure, or even a broad class of structures. The term “device” in isolation is not used in common parlance by persons of skill in the art to designate a structure or even a broad class of structures. Rather, “device” is a generic term that can refer to almost any conceivable element in a communications system, and thus provides no information to a person of skill in the art as to what particular structure or class of structures is contemplated. Further specifying that the device is a “network device” does not cure the deficiency of disclosure. A “network device” is an equally generic term that does not connote any structure, or even a broad class of structures. Rather, one of ordinary skill in the art would

understand a network device could be any type of device connected to a network or capable of communicating over a network. No structure is implied by this term.

85. Because no structure is recited or even implied by the term “network device,” one of ordinary skill in the art would look to the specification for guidance in determining the proper scope of this term. The only structure disclosed in the specification, however, takes the form of generic network device 120 shown in Figure 1. For example, there is no disclosure or description of the structure used within the network device to transmit or receive buffer status reports. Because this “black box” disclosure does not connote any structure, this term is indefinite.

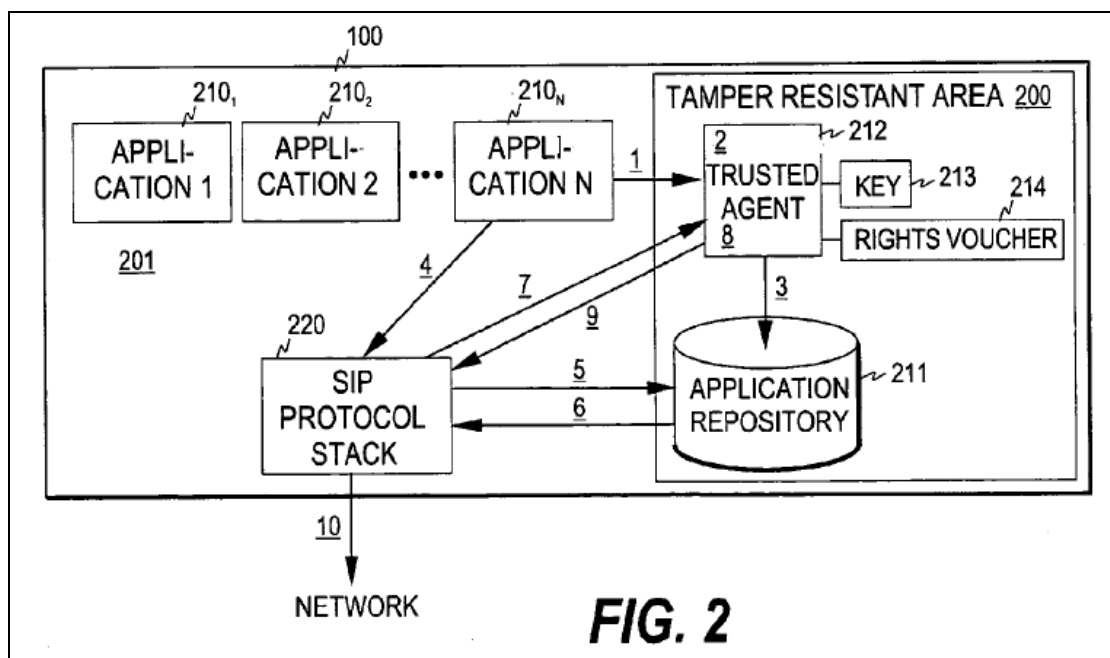
D. The '8923 Patent

86. The '8923 Patent, titled “Control of terminal applications in a network environment,” was filed on June 8, 2004 and claims priority to a Finnish patent application filed December 18, 2003. For the purposes of this declaration, I consider the date of invention to be December 18, 2003.

87. The '8923 Patent is directed to “[a] mechanism and method for controlling the rights and/or behavior of applications in a terminal.” ('8923 Patent at Abstract). At least some of the messages generated by an application residing in the terminal and destined for a communication network are diverted to an independent “controlling entity” also residing in the terminal. (*Id.*) In the controlling entity, the messages are controlled before being transmitted to the communication network. (*Id.*) Depending on the application and its behavior in the terminal, the control entity may modify the messages or even prevent the messages from being sent on the communication network. (*Id.*)

88. An overview of the terminal is shown in Figure 2. A “tamper resistant area” includes at least one trusted agent 212, “which acts as a controlling entity controlling the rights and behavior of the applications.” (*Id.* at 3:60-63). The applications 210 access the communications network through a protocol stack 220, which is shown as a Session Initiation Protocol (SIP) stack in Figure 2. The tamper resistant area may further include an application repository 211 that includes “identifiers of applications that need to be controlled by the trusted agent 212.” (*Id.* at 4:4-7).

89. When the user starts one of the applications 210, the application communicates with the trusted agent 212. (*Id.* at 4:28-29). The trusted agent 212 examines a session initiation request (*e.g.*, SIP INVITE) received from one of applications 210 and checks whether the application is behaving “as it should be behaving.” (*Id.* at 4:61-63). The trusted agent 212 may then “prohibit the sending of the request” under certain circumstances. (*Id.* at 4:65-67). If the trusted agent allows the sending of the request, it returns the request, either as such or in a modified form, to the protocol stack. (*Id.* at 4:67-5:4).



1. “controlling entity”

90. In my opinion, the term “controlling entity” as used in claims 1, 4, 24, and 26 of the ’8923 Patent is indefinite because this term does not recite sufficiently definite structure, but rather merely recites function without sufficient structure for performing that function and the specification does not describe the missing structure.

91. The “controlling entity” is responsible for “controlling...whether the application program behaves in a predetermined manner.” (’8923 Patent at cl. 1). In my opinion, one of ordinary skill in the art would understand the term “controlling entity” to be a nondescript generic term for software and/or hardware that performs a specified function and be no different than if the patentee used the term “controlling means.” One of ordinary skill in the art would not attribute any structure to the claimed “controlling entity,” and would rather look to the specification for guidance in determining the proper scope of this term. This term is therefore properly construed as a means-plus-function limitation under 35 U.S.C. § 112, ¶ 6.

92. The only description of the “controlling entity” in the specification, however, is “trusted agent 212,” which takes the form of a nondescript “black box” in Figure 2. (*Id.* at 3:60-66; Figure 2). In addition, the specification explains that the trusted agent may be a dedicated software agent or DRM agent whose “normal functionality” has been “modified for the method of the invention.” (*Id.* at 3:63-66.) No such DRM modification, however, is described within the specification. Such a black box recitation of structure (and undisclosed modifications of such structure), however, does not imply any sufficiently definite structure for performing the function of “controlling...whether the application program behaves in a predetermined manner,” nor does it inform one of ordinary skill in the art about the proper scope of the claims or serve any legitimate public notice function.

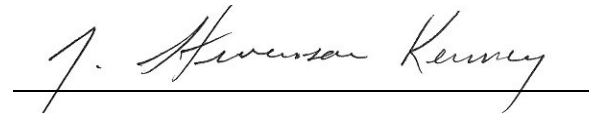
93. For example, the claimed “controlling entity” could take the form of any generic device or component that controls the rights and behavior of application programs. Just as with Figure 2, Figures 6, 7, and 8 of the ’8923 Patent merely illustrate the “trusted agent” as a structurally nondescript black box. These figures (and the corresponding descriptions of these figures) do not provide any description of the structure or composition of the trusted agent or controlling entity. For these reasons, it is my opinion that the term “controlling entity” is indefinite.

VI. RESERVATION OF RIGHTS

94. The opinions provided in this declaration are offered only to explain how a person of ordinary skill in the art at the time of the alleged invention would understand the meanings of the claim terms discussed above. I reserve the right to discuss any claim limitations at issue or that become at issue as the case develops, as well as the plain and ordinary meaning of any claim term, based on the intrinsic evidence, extrinsic evidence, and on my experience and knowledge in the subject matter of the claimed invention.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct.

Dated: November 6, 2015


J. Stevenson Kenney, Ph.D.

Executed in Atlanta, Georgia.